

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A method of detecting a target analyte in a sample comprising:

a) adding said sample to a detection chamber comprising ~~array of detection electrodes, each comprising a covalently attached capture ligand~~ a detection electrode comprising a self assembled monolayer and a capture ligand bound to said self assembled monolayer;

b) mixing said sample such that said target analyte binds to said capture ligand to form an assay complex, wherein said assay complex further comprises at least one electron transfer moiety (ETM); and

c) detecting the presence of said ETM using said detection electrodes.

2. (Currently amended) A method according to claim 1 or 8 wherein said capture ligand comprises a nucleic acid.

3. (canceled)

4. (Currently amended) A method according to claim 1 or 8 wherein said mixing is accomplished by applying an AC/DC pulse.

5. (Currently amended) A method according to claim 1 or 8 wherein said mixing is accomplished through the use of mixing particles.

6. (original) A method according to claim 5 wherein said mixing particles comprise microparticulate matter.

7. (Currently amended) A method according to claim 1 or 8 wherein said mixing is accomplished through the use of an electrophoretic electrode.

8. (original) A method according to claim 1 wherein each of said detection electrodes is "sunken" or "recessed" with respect to the chamber, such that the flow of said sample past each of said detection electrodes causes said mixing.

9. (new) The method of claim 1 or 8 wherein said monolayer insulates against one or more of nonspecific binding and nonspecific signaling.

10. (new) The method of claim 1 or 8 wherein said detection electrode is present among an array of detection electrodes.

11. (new) The method of claim 1 or 8 wherein said capture ligand is bound to said self-assembled monolayer using biotin and streptavidin.

12. (new) The method of claim 10 wherein said capture ligand is bound to said self-assembled monolayer using biotin and streptavidin.

13. (new) The method of claim 2 wherein said target analyte is a nucleic acid and said method further comprises amplifying said nucleic acid analyte with PCR prior to binding to said capture ligand.

14. (new) The method of claim 11 wherein said target analyte is a nucleic acid and said method further comprises amplifying said nucleic acid analyte with PCR prior to binding to said capture ligand.

15. (new) The method of any one of claims 12 wherein said ETM is a hybridization indicator.

16. (new) The method of claim 15 wherein said ETM comprises a transition metal complex.

17. (new) The method of claim 15 wherein said detecting comprises amperometry.

18. (new) The method of claim 15 wherein said detecting comprises voltammetry.

19. (new) The method of claim 15 wherein said detecting comprises capacitance measurement.

20. (new) The method of claim 15 wherein said detecting comprises impedance measurement.

21. (new) The method of claim 1 or 8 wherein said detecting comprises amperometry.

22. (new) The method of claim 1 or 8 wherein said detecting comprises capacitance measurement.

23. (new) The method of claim 1 or 8 wherein said detecting comprises impedance measurement

24. (new) The method of claim 1 or 8 wherein said detecting comprises voltammetry.

25. (new) The method of claim 1 or 8 wherein said detecting comprises amperometry.